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(54) Graphical user interface using transparent windows.

(57) A method and apparatus for locating specific information from a plurality of information on a display are provided. The method includes the step of transforming the plurality of information to a predefined transparency state to locate the specific information. The apparatus includes a display for displaying the plurality of information, a processor, and an icon for controlling the processor to transform the plurality of information to a predefined transparency state to locate the specific information.

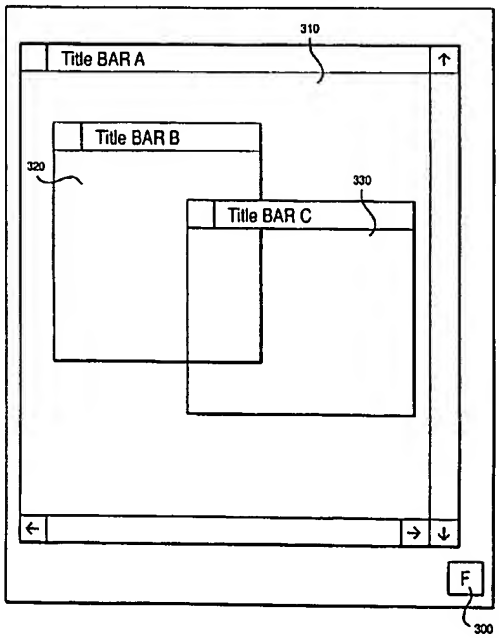

FIG. 3

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The present invention relates generally to computer systems and, more particularly, to an enhanced graphical user interface.

Conventional graphical user interfaces ("GUI") typically represent objects as icons, which may be individually opened as windows. As such, those GUIs allow many windows to be concurrently opened and share the same computer display screen. Using the GUI, the user controls the size and arrangement of these windows, which are typically stacked one on top of the other on the screen.

Several disadvantages and limitations arise from conventional GUIs. First, the user may not know which window a desired object resides in. Second, even if the user knows which window the desired object resides in, the user may not know where that window resides because it may be hidden by other stacked windows. Therefore, the user must reposition and/or resize each stacked window so that the contents of a particular window may be examined. This process is tedious and time consuming.

For example, Fig. 1 illustrates a pictorial view of multiple, stacked windows according to U.S. Patent 5,140,678. Each stacked window includes a tab 141, 150, 160, and 170, respectively. When the upper frame of the windows are perfectly aligned or are skewed in an upwardly fashion, the objects inside each window are invisible, but the tabs are visible. However, if the stacked windows are skewed in a downwardly fashion, tabs 150, 160, and 170 would not be visible. Furthermore, if any of the stacked windows were smaller than the top window, its respective tab would not be visible. Accordingly, this technique of identifying multiple stacked windows has limitations and disadvantages.

Accordingly, there is a great need for a technique that enables the user to locate an object in a window without having to rearrange, close, or resize windows.

The present invention provides a method for controlling a computer to locate specific information from a plurality of information on a display, comprising the step of: transforming said plurality of information to a predefined transparency state to locate said specific information.

The present invention also provides a computer system comprising: a processor; a display; and apparatus for locating specific information from a plurality of information, the apparatus comprising means for controlling the processor to transform a plurality of information displayed on the display to a predefined transparency state to locate the specific information.

In order that the invention may be fully understood a preferred embodiment thereof will now be described, by way of example only, with reference to the accompanying drawings in which:

Fig. 1 illustrates a pictorial view of multiple, stacked windows according to U.S. Patent 5,140,678;

Fig. 2 is a schematic diagram of representative hardware which may be used with the present invention;

Fig. 3 is a pictorial view of a fluoroscope icon and multiple windows in accordance with the present invention;

Fig. 4 is a pictorial view of a fluoroscope icon and fluoroscope icon menu in accordance with the present invention;

Fig. 5 is a pictorial view of a transparency adjustment dialogue in accordance with the present invention; and

Fig. 6 is a flow chart in accordance with the present invention.

An exemplary embodiment of the present invention includes an apparatus and method for providing an enhanced graphical user interface. The exemplary embodiment is preferably practised in a suitable representative hardware configuration, such as the hardware configuration illustrated in Fig. 2.

Referring to Fig. 2, workstation 200 includes any suitable central processing unit 210, such as a conventional microprocessor, and a number of other units interconnected via system bus 212. Illustratively, workstation 200 includes random access memory ("RAM") 214, read only memory ("ROM") 216, display adapter 236 for connecting system bus 212 to display device 238, and I/O adapter 218 for connecting peripheral devices (e.g. disk and tape drives 220) to system bus 212. Workstation 200 further includes user interface adapter 222 for connecting keyboard 224, mouse 226, speaker 228, microphone 232, and/or other user interface devices, such as a touch screen device (not shown), to system bus 212. Communication adapter 234 connects workstation 200 to a data processing network.

The enhanced graphical user interface ("GUI") (e.g. control element) of the exemplary embodiment resides within a machine-readable media to direct the operation of workstation 200. Any suitable machine-readable media may retain the GUI, such as RAM 214, ROM 216, a magnetic diskette, magnetic tape, or optical disk (the last three being located in disk and tape drives 220).

Specific information (e.g. objects) can be located within multiple stacked windows (e.g. information) using the GUI. To do this, the GUI directs CPU 210 to adjust the transparency of the objects within all displayed windows. Specifically, Fig. 3 illustrates the GUI-generated fluoroscope icon ("F icon") 300 and three stacked, transparent windows 310, 320, and 330. While F icon 300 may be positioned anywhere on the top window (e.g. window 310), in the exemplary embodiment, the GUI positions F icon 300 at the lower right side of the desktop.

Any suitable pointing device, such as a mouse, may open F icon 300. In the exemplary embodiment, two clicks of a first button on the mouse opens F icon

300. Upon opening F icon 300, th transparency of the stacked windows on the display screen transforms to th transparency of th prior s tting (.g. also referred to as "predetermin d transparency state") of transparency scale 540 (see Fig. 5). Fig. 3 illustrates windows which have been transferred to their most transparent state. As such, only the frames and title bars of those windows can be viewed.

Referring to Fig. 4, if the user desires to change the predetermined transparency state, the user positions the mouse over F icon 300 and clicks the second button on the mouse. In response, menu 410 appears. Using the mouse, the user may select one of three options, namely transparency button 420, help button 430, or quit button 440. If the user selects quit button 440, menu 410 disappears. Help button 430 provides a dialogue (not shown) with instructions on how to operate F icon 300.

If transparency button 420 is selected, transparency adjustment dialogue ("dialogue") 500 appears on the display screen. Referring to Fig. 5, dialogue 500 includes transparency scale 540, slider 510, close button 530, and help button 420. Transparency scale 540 is an adjustable transparency scale that provides the most transparency at the top of the scale and the least transparency at the bottom of the scale. Using the mouse, the user may adjust the amount of transparency by moving slider 510 up and down transparency scale 540. If slider 510 is positioned at the top of scale 540, all objects on every stacked window are transparent, i.e. cannot be seen, except for their frames and title bars. Therefore, at the highest transparency, the user views only the frames and title bar or title icon for every window stacked on the display screen. (For example, see Fig. 3).

Conversely, if slider 510 is positioned at the bottom of scale 540, the least amount of transparency is provided. As such, each object of every stacked window, including the frame and title bar or title icon, is displayed on the display screen. The only thing that is transparent is the window's background.

Fig. 6 illustrates a flow chart of the exemplary embodiment. Referring to Figs. 5 and 6, at 610, F icon 300 is opened. In response, the GUI retrieves the last transparency setting value (e.g. state) of slider 510. At 630, the GUI transforms the contents of the stacked windows into the previous transparency state set on slider 510. At 640, if the target window is visible, the title bar for that target window is clicked so that the window appears at the top of the stack. Further, the GUI turns off the transparency. Alternatively, the user may click the mouse while simultaneously pressing a keyboard modifier key to keep the transparency function on when the selected window appears at th top.

Howev r, if th target window is not visible, menu 410 may be opened at 660. At 670, th user s lects transparency button 420 from m nu 410. In response, at 680, the GUI displays transparency adjustment dialogu 500. At 690, the user moves slider 510 until th targ t object is located. At 691, if the desired targ t bject is located, the titl bar of th window containing that object is clicked at 650. However, if the desired target object is not located, the user may quit at 694 or move/resize some or all of the stacked windows at 693. Control then returns to 660.

Claims

1. A computer system comprising:
   a processor;
   a display; and
   apparatus for locating specific information from a plurality of information, the apparatus comprising means for controlling the processor to transform a plurality of information displayed on the display to a predefined transparency state to locate the specific information.

2. A computer system as claimed in claim 1 wherein the controlling means comprises an icon.

3. A computer system as claimed in claim 1 or claim 2 further comprising:
   means for controlling the processor to adjust the transparency state until the specific information is displayed on the display.

4. A computer system as claimed in claim 3 wherein the adjusting means comprises:
   a transparency adjustment dialogue having a transparency scale; and
   a slider for moving along the transparency scale until the specific information is located.

5. A computer system as claimed in claim 4 wherein the top of the transparency scale provides more transparency and the bottom of the transparency scale provides less transparency.

6. A method for controlling a computer to locate specific information from a plurality of information on a display, comprising the step of:
   transforming said plurality of information to a predefined transparency state to locate the specific information.

7. A method as claimed in claim 6 further comprising the step of:
   adjusting the transparency state until the specific information is display d on th display.

8. A method as claimed in claim 7 wherein the adjusting st p comprises the steps of:
   displaying a transparency adjustment dia-

logu having a transpar ncy scal ; and
moving a slider along th transparency scale until th specific information is located.

9. A method as claimed in claim 8 wherein the top of the scale provides more transparency and the bottom of the scale provides less transparency.

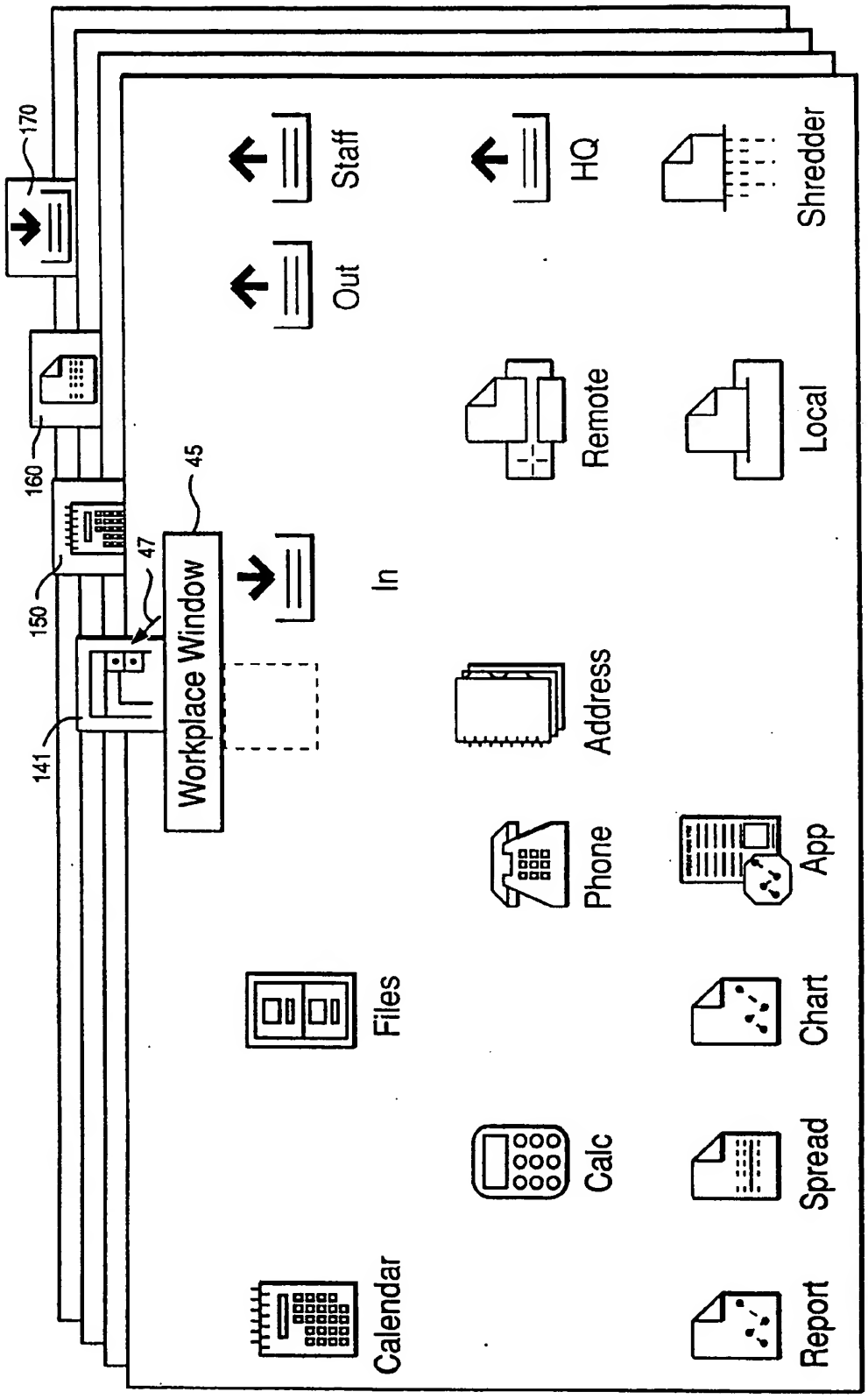

FIG. 1 PRIOR ART

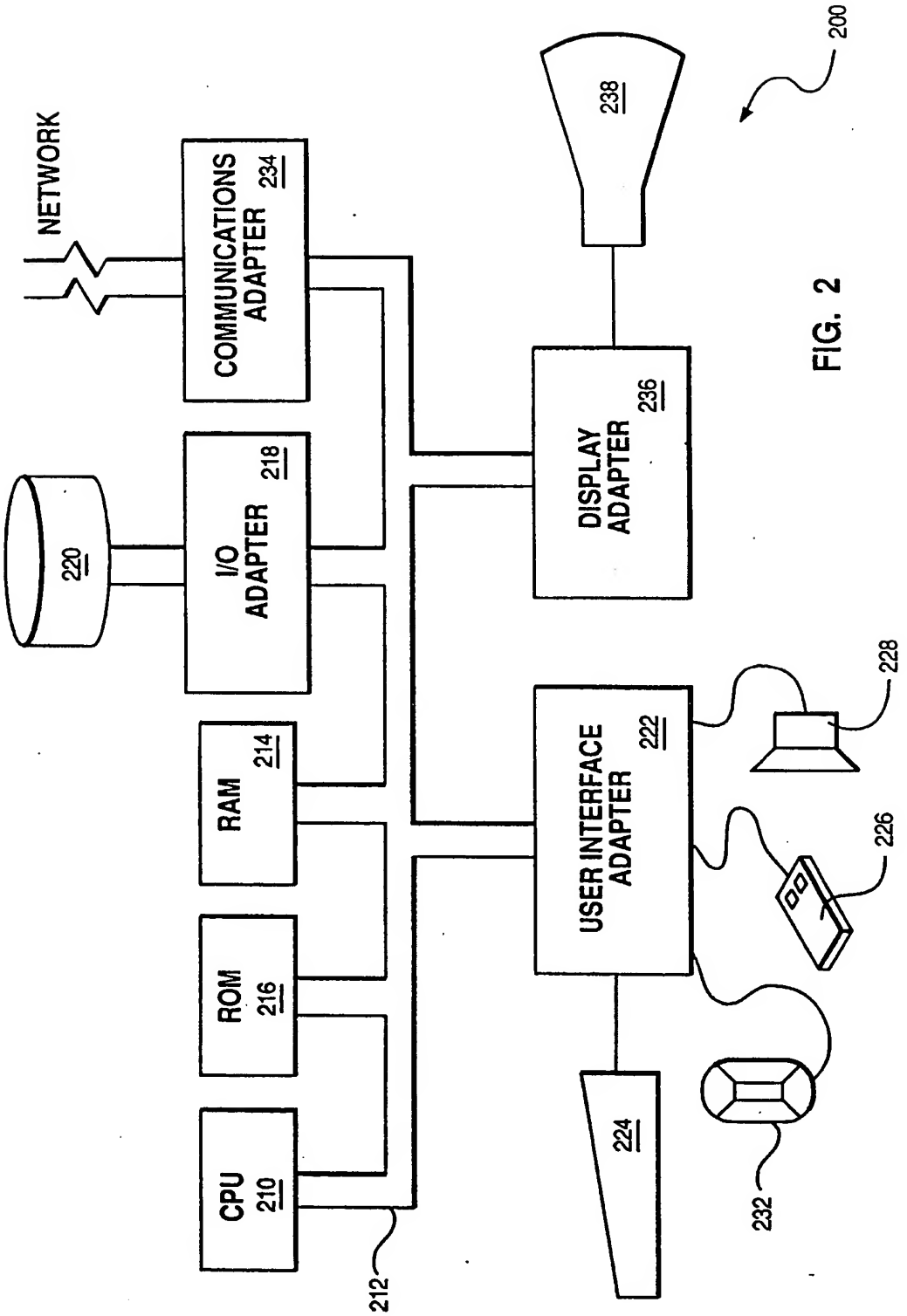
200
238
NETWORK
COMMUNICATIONS ADAPTER 234
DISPLAY ADAPTER 236
220
I/O ADAPTER 218
RAM 214
ROM 216
CPU 210
212
USER INTERFACE ADAPTER 222
228
226
224
232

FIG. 2

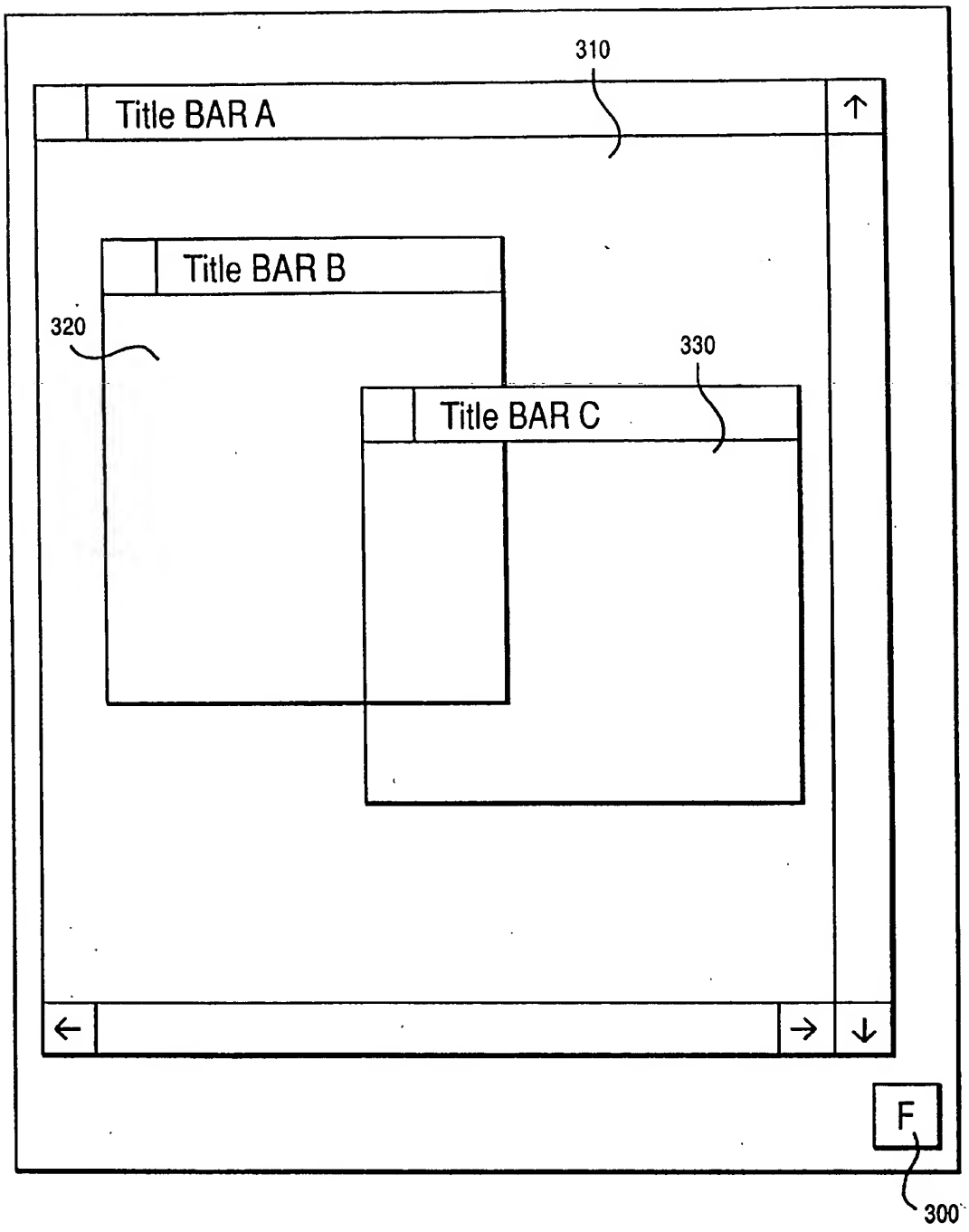

FIG. 3

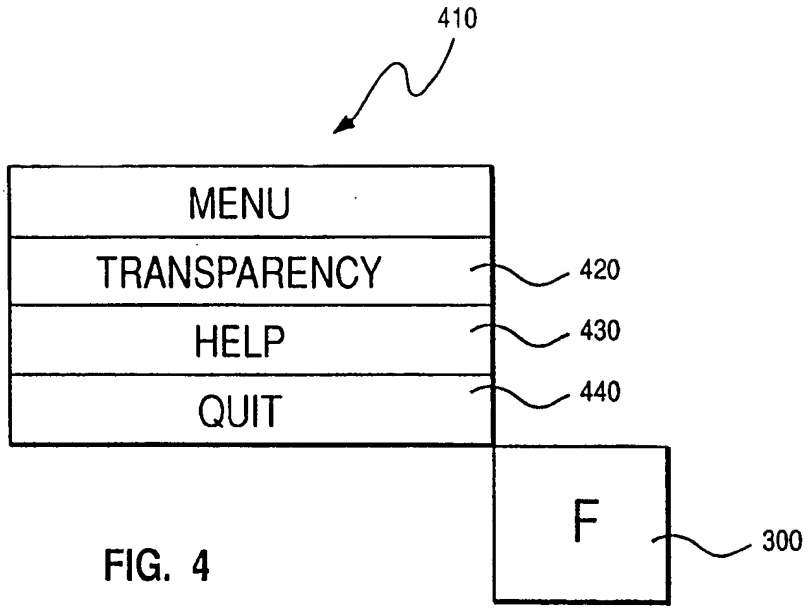
410
MENU
TRANSPARENCY
HELP
QUIT
420
430
440
F
300

FIG. 4

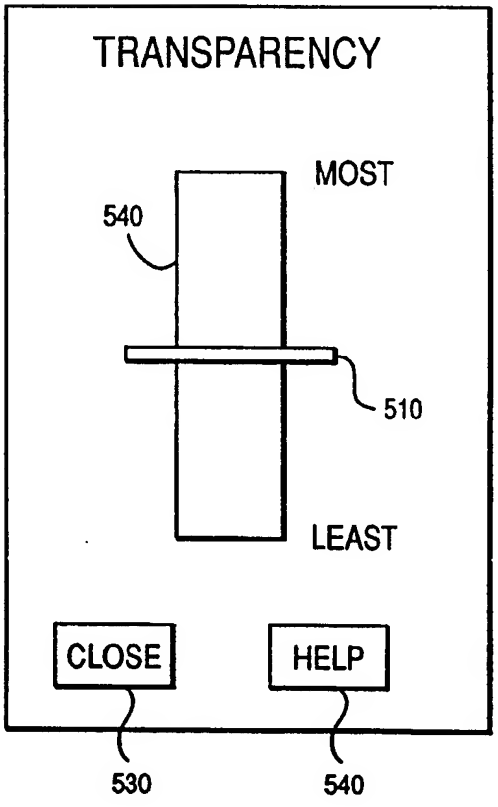
TRANSPARENCY
MOST
540
510
LEAST
CLOSE
HELP
530
540
500

FIG. 5

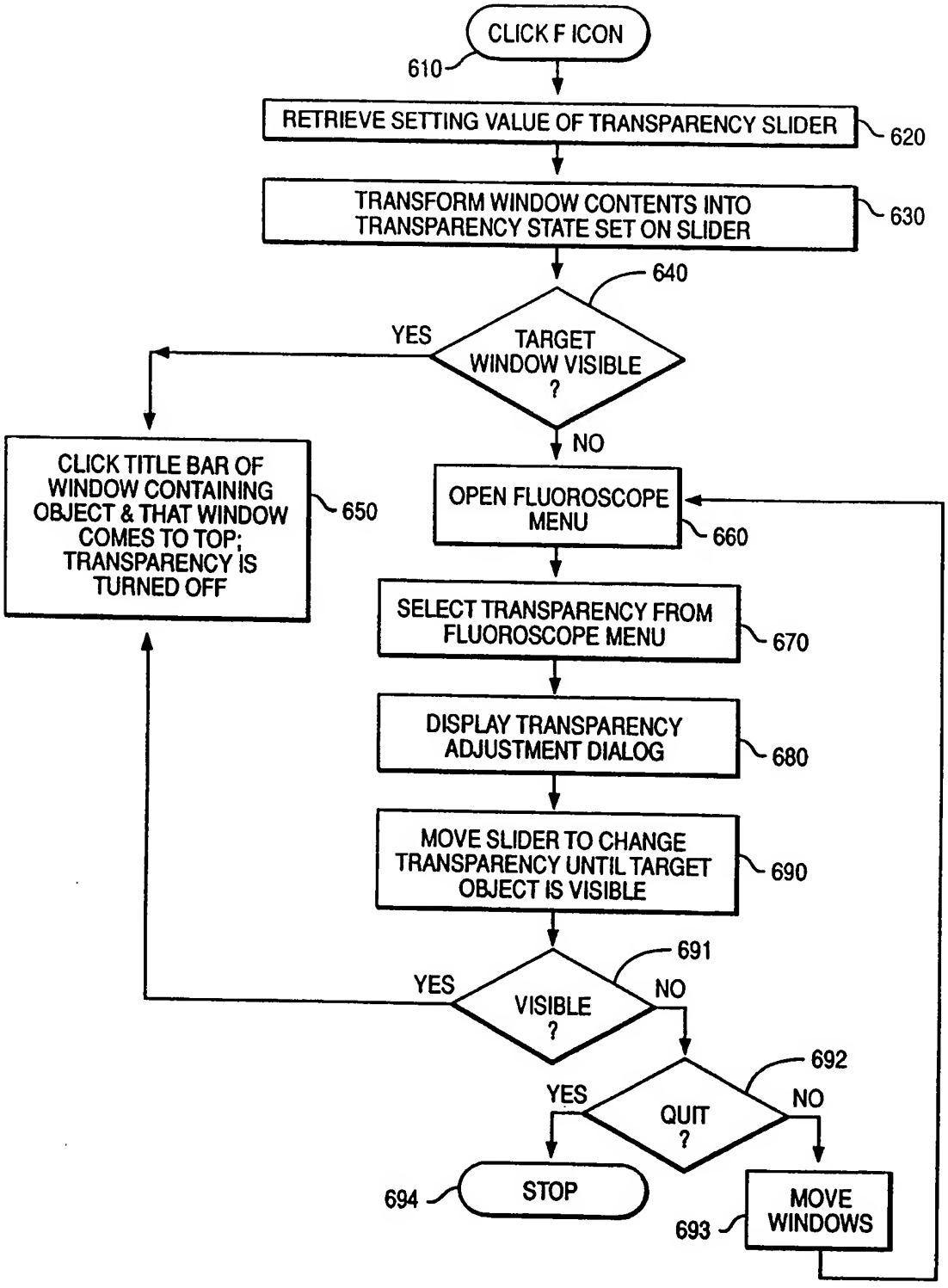
CLICK F ICON
610
RETRIEVE SETTING VALUE OF TRANSPARENCY SLIDER
620
TRANSFORM WINDOW CONTENTS INTO TRANSPARENCY STATE SET ON SLIDER
630
640
TARGET WINDOW VISIBLE ?
YES
NO
CLICK TITLE BAR OF WINDOW CONTAINING OBJECT & THAT WINDOW COMES TO TOP; TRANSPARENCY IS TURNED OFF
650
OPEN FLUOROSCOPE MENU
660
SELECT TRANSPARENCY FROM FLUOROSCOPE MENU
670
DISPLAY TRANSPARENCY ADJUSTMENT DIALOG
680
MOVE SLIDER TO CHANGE TRANSPARENCY UNTIL TARGET OBJECT IS VISIBLE
690
691
VISIBLE ?
YES
NO
692
QUIT ?
YES
NO
694
STOP
693
MOVE WINDOWS

FIG. 6

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 95 30 3142

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	IBM TECHNICAL DISCLOSURE BULLETIN, vol. 37, no. 04B, April 1994 NEW YORK US, pages 101-102, 'Transluscent Windows for Gaphical-User Interfaces' * the whole document *	1,2,6	G06F3/033
X	EP-A-0 344 082 (IBM CORPORATION) * abstract * * column 3, line 20 - line 31 * * column 4, line 64 - column 5, line 26; figure 1 * * column 5, line 39 - line 48 *	1,2,6	
X	IBM TECHNICAL DISCLOSURE BULLETIN, vol. 37, no. 02B, February 1994 NEW YORK US, pages 201-202, 'All Windows Transparent' * the whole document *	1,2,6	
A	IBM TECHNICAL DISCLOSURE BULLETIN, vol. 37, no. 02B, February 1994 NEW YORK US, pages 323-325, 'Presentation Angles: Turning On, Off Elements or Changing Space by Louvers' * the whole document *	3-5,7-9	TECHNICAL FIELDS SEARCHED (Int.Cl.6) G06F
P,X	EP-A-0 605 945 (FIRSTPERSON INC) 13 July 1994 * abstract * * page 4, line 8 - line 23 * * page 8, line 6 - page 9, line 1; figures 7,8 * * page 9, line 30 - line 38; figure 10 *	1-9	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	22 September 1995	Bravo, P

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
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E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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